

REMARKS

This Response is submitted in reply to the Non-Final Office Action dated April 21, 2008. Claims 7 to 12 are currently pending in this application. Claims 1 to 6 were previously cancelled. Claims 7 to 12 have been amended for clarification purposes. A Request for Continued Examination is submitted herewith. A Petition for a Four Month Extension of Time to Respond following the Notice of Appeal, filed October 20, 2008, is submitted herewith. A Supplemental Information Disclosure Statement is submitted herewith. Please charge Deposit Account No. 02-1818 for all payments due in connection with the RCE, the Petition for a Four Month Extension of Time, the Supplemental IDS, and this Response.

As noted above, Applicant has filed a Request for Continued Examination with this Response. Accordingly, Applicant requests that the Examiner provide an upcoming Office Action which will "...identify any claims which he or she judges, as presently recited, to be allowable and/or...suggest any way in which he or she considers that rejected claims may be amended to make them allowable" in accordance with §707.07(d) of the MPEP.

The Office Action rejected claims 7 to 12 under 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 6,480,822 to Thyssen ("*Thyssen*"). Applicant respectfully disagrees with, and traverses, such rejections.

Amended independent claim 7 is directed to a communication device including, among other elements, a bandwidth expansion device for expanding a bandwidth of a narrowband speech signal at its low-frequency and/or high-frequency end by synthesis of at least one frequency band contained within the narrowband speech signal and a memory unit, communicatively coupled to the bandwidth expansion device, wherein the memory unit stores a reference table that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal.

Applicant respectfully submits that the portions of *Thyssen* relied on by the Office Action are each generally directed to a speech encoder. On the other hand, amended independent claim 7 is directed to a communication device including a bandwidth expansion device for expanding a bandwidth of a narrowband speech signal at its low-frequency and/or high-frequency end by synthesis of at least one frequency band contained within the narrowband speech signal.

Applicant respectfully submits that one of skill in the art would understand that the bandwidth expansion device of independent claim 7 is generally contained within a speech decoder, as opposed to the speech encoder embodied by the cited portions of *Thyssen*.

The Office Action cited column 11, lines 65-67 to support its contention that *Thyssen* discloses a bandwidth expansion device for expanding a bandwidth of a narrowband speech signal. *Thyssen*, at column 11, lines 14-15, states that “[t]wo pre-processing functions are applied prior to the encoding process...” and then goes on to explain the pre-processing functions. Thus, Applicant respectfully submits that the Office Action’s reliance on the appearance of the phrase “bandwidth expansion” does not disclose the bandwidth expansion device of claim 7. The Office Action also cited column 7, line 40, as disclosing a bandwidth expansion device for expanding a bandwidth of a narrowband speech signal. Applicant disagrees, and states that the cited portion of *Thyssen* discloses a mechanism for an encoder to identify modeling parameters for communication to a decoder, such that the decoder can use the parameters communicated to it in decoding the voice signal. Thus, the cited portion of *Thyssen* is concerned with generating bit stream information for delivery to the encoder for communication to a decoder. For this additional reason, Applicant submits that *Thyssen* does not disclose the bandwidth expansion device for expanding a bandwidth of a narrowband speech signal, as in amended independent claim 7.

Amended independent claim 7 is further directed to a communication device including a memory unit, communicatively coupled to the bandwidth expansion device, wherein the memory unit stores a reference table that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal.

The Office Action cited column 2, lines 58-64 of *Thyssen* as disclosing the memory unit of amended independent claim 7. Applicant disagrees, and submits that the cited portion of *Thyssen* discloses a table or other index that lists the energies for each codebook vector. Applicant submits that since this codebook is used to encode data, as opposed to perform bandwidth expansion on received data, *Thyssen* does not disclose a reference table that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal. Furthermore, Applicant submits that since the table of the cited portion of *Thyssen* stores relationships between codebook vectors and energies, *Thyssen* does not

disclose that the memory unit stores a reference table that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal.

The Office Action also stated that column 18, lines 50-55 of *Thyssen* disclose the memory unit of independent claim 7. Applicant reiterates its position, stated above, that *Thyssen* is concerned with encoding data, and specifically that the cited portion of *Thyssen* is concerned with determining a vector of prediction error for use as part of the disclosed encoding process. *Thyssen* further discloses, at column 6, lines 37-40, that certain encoder processing circuitry applies a process wherein a contribution from an adaptive codebook is selected along with a corresponding gain which together minimize a first error signal. Thus, Applicant submits that the portion of *Thyssen* relied upon by the Office Action as disclosing the memory unit storing a reference table that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal in fact relates to a mechanism for encoding a signal with as little an amount of error as possible. On the other hand, amended independent claim 7 is directed to a communication device including a memory unit which stores a reference table that includes at least one parameter value for the bandwidth expansion for at least two net bit rates of the narrowband speech signal. For this additional reason, Applicant submits that *Thyssen* does not disclose each and every element of amended independent claim 7.

For the reasons given above, Applicant submits that *Thyssen* does not disclose each and every element of amended independent claim 7. Thus, Applicant submits that amended independent claim 7 is patentably distinguished over *Thyssen*, and is in condition for allowance.

Claim 8, which depends directly from independent claim 7, is also not anticipated by *Thyssen* for the reasons given above and because of the additional features recited in claim 8.

Amended independent claim 9 is directed to a method for expanding a bandwidth of a narrowband speech signal for a communication terminal including, among other elements, a) detecting a net bit rate of the narrowband speech signal of the communication terminal, b) accessing a memory that includes a reference table, the reference table including associations between at least two net bit rates and parameter values for bandwidth expansion, in order to determine the at least one parameter value which is suitable for the detected net bit rate, and c) expanding the bandwidth by means of a bandwidth expansion device on the basis of the parameters determined for the detected net bit rate in step b).

The Office Action stated that column 18, lines 50-55 of *Thyssen* disclose detecting a net bit rate of the narrowband speech signal of the communication terminal, as in independent claim 9. Applicant disagrees, and submits that the cited portion of *Thyssen* is concerned with determining an intermediate, error vector for use in generating a signal for encoding. Moreover, to the extent that the cited portion of *Thyssen* deals with a plurality of different bit rates, the cited portion of *Thyssen* discloses that different sets of coefficients are used for coders having different rates. The cited portion of *Thyssen* is totally silent as to detecting a bit rate of a narrowband speech signal. Thus, the cited portion of *Thyssen* does not disclose detecting a net bit rate of the narrowband speech signal of the communication terminal, as in amended independent claim 9.

The Office Action further stated that *Thyssen* discloses accessing a memory that includes a reference table, the reference table including associations between at least two net bit rates and parameter values for bandwidth expansion, in order to determine the at least one parameter value which is suitable for the detected net bit rate at column 2, lines 58-64 and column 18, lines 50-55. Applicant submits that both cited sections of *Thyssen* are concerned with generating data for use in encoding signals for transmission, and not for performing bandwidth expansion on a narrowband speech signal with a detected bit rate. Moreover, as stated above with respect to independent claim 7, the cited portion of *Thyssen* discloses such a table or other index that lists the energies for each codebook vector. Thus, Applicant respectfully submits that neither of the cited portions of *Thyssen* disclose accessing a memory that includes a reference table, the reference table including associations between at least two net bit rates and parameter values for bandwidth expansion, as in amended independent claim 9.

Finally, the Office Action stated that *Thyssen* discloses expanding the bandwidth by means of a bandwidth expansion device on the basis of the parameters determined for the detected net bit rate in step b), relying on column 11, lines 65-67 and column 7, line 40, of *Thyssen*. Applicant respectfully submits that since *Thyssen* does not disclose the reference table including the associations between at least two net bit rates and parameter values, as in amended independent claim 9, *Thyssen* cannot disclose expanding the bandwidth...on the basis of the parameters determined for the detected net bit rate. Moreover, regardless of whether the cited portions of *Thyssen* generally reference bandwidth expansion (see, e.g., column 11, line 66), the bandwidth expansion of the cited portions of *Thyssen* is disclosed in the context of encoding

signals, not expanding the bandwidth of a narrowband speech signal on the basis of the parameters for the current bit rate, as in amended independent claim 9.

For at least the reasons given above, Applicant submits that *Thyssen* does not disclose each and every element of amended independent claim 9. Thus, Applicant submits that independent claim 9 is patentably distinguished over *Thyssen*, and is in condition for allowance.

Claims 10 and 11, which depend directly from amended independent claim 9, are also not anticipated by *Thyssen* for the reasons given above, and because of the additional features recited in these claims. Thus, claims 10 to 12 are patentably distinguished over *Thyssen* and are in condition for allowance.

The Office Action did not substantively address why claim 12 is allegedly anticipated by *Thyssen*. Appellant states that claim 12 depends directly from amended independent claim 9. Thus, for at least the reasons given above with respect to claim 9, and because of the additional features recited in claim 12, Applicant submits that claim 12 is patentably distinguished over *Thyssen* and is in condition for allowance.

The Office Action rejected claim 12 under 35 U.S.C. §103(a) as being unpatentable over *Thyssen*. Applicant respectfully disagrees with, and traverses, such rejections.

Claim 12, which depends indirectly from amended independent claim 9, is directed to a method for expanding a bandwidth of a narrowband speech signal for a communication terminal including, among other elements, accessing a memory that includes a reference table, the reference table including associations between at least two net bit rates and parameter values for bandwidth expansion, in order to determine at least one parameter which is suitable for a detected bit rate, wherein the reference table takes into account, as parameters, of the energy of a synthesized frequency band, and a spectral structure of the synthesized frequency band, wherein the spectral structure of the synthesized frequency band takes account of the probability of occurrences of artifacts at specific frequencies in the narrowband speech signal.

The Office Action stated that while *Thyssen* does not specifically teach that the spectral structure of the synthesized frequency band takes account of the probability of occurrences of artifacts at specific frequencies in the narrowband speech signal, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine probability of

occurrences of artifacts at specific frequencies, because that would help reduce unwanted spectral variations.

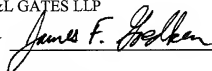
Regardless of whether it would have been obvious to one of ordinary skill in the art at the time of the invention to determine probabilities of occurrences of artifacts at specific frequencies, as stated by the Office Action, Applicant submits that Claim 9, from which Claim 12 depends, is patentably distinguished over *Thyssen*. For at least the reasons given above with respect to Claim 9, and because of the additional features recited in claim 12, Applicant submits that claim 12 is patentably distinguished over *Thyssen* and is in condition for allowance.

An earnest endeavor has been made to place this application in condition for formal allowance and is courteously solicited. If the Examiner has any questions regarding this Response, Applicant respectfully requests that the Examiner contact the undersigned.

Respectfully submitted,

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